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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/622,054 | 07/17/2003 | Dirk Dieter Hans Ter Horst | 03-446 | 2276 |
| 34704 | 7590 | 03/29/2005 | EXAMINER | |
| BACHMAN & LAPOINTE, P.C. | | | GREENE, JASON M | |
| 900 CHAPEL STREET | | | ART UNIT | PAPER NUMBER |
| SUITE 1201 | | | 1724 | |
| NEW HAVEN, CT 06510 | | | DATE MAILED: 03/29/2005 | |

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/622,054

Applicant(s)

HORST ET AL.

Examiner

Jason M. Greene

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the filter material having a permeability of air to about at least 4 l/m²/s in lines 1-2. However, the phrase "to at least 4 l/m²/s" renders the claim indefinite because the range of permeability intended to be covered is not clear. Specifically, the term "to" suggests that the claim is intended to cover a range up to a maximum value. However, the term "to" is followed by the phrase "at least", which suggests that the claim is intended to cover a range greater than or equal to a minimum value. Therefore, it is not clear if the claim is intended to cover permeabilities up to about 4 l/m²/s, at least about 4 l/m²/s, or both. The Examiner notes that it appears as though the phrase "a permeability of air to" in line 2 should have been written as "a permeability to air of" (see specification page 6, lines 11-14). Accordingly, for examination purposes, the recited range has been assumed to cover permeabilities of least about 4 l/m²/s.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3 and 5-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Fanselow et al.

With regard to claims 1-3 and 5-7, Fanselow et al. discloses a filter (100) comprising fibers having a core of polypropylene formed into a filter structure and having at least one embossment (110) having a depth of 5.5 mm and a weight of 250 g/m² (see the first Example in Table 1) in Figs. 1, 2 and 7, col. 3, lines 23-42, col. 7 lines 1-46, col. 8, lines 1-6 and col. 11, line 1 to col. 12, line 5.

With regard to claim 8, Fanselow et al. discloses the embossments being formed by a wire having a diameter of 0.244 cm (2.44 mm) in the first Example of Table 1. Since the width of the embossment (110) will be equal to the width of the wire, the ratio of depth to width can be calculated to be 5.5 mm/2.44 mm = 2.25:1, which is within the claimed range of at least about 1:10.

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5. Claims 1-4 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Aston.

With regard to claims 1-3, Aston discloses a filter (15) comprising polyester formed into a filter structure and having at least one embossment (the dimples) having a depth of 1/16 inch (1.59 mm) in Figs. 1 and 2 and col. 3, line 62 to col. 4, line 16.

With regard to claim 4, while Aston does not explicitly disclose the permeability of the filter, it can be calculated from the disclosed data. Specifically, the permeability of the filter can be determined from the air flow rate through the filter divided by the surface area of the filter. In Fig. 2, Aston discloses the filter of Example 3 having an air flow of 2250 CFM ($1.062 \text{ m}^3/\text{s}$ or 1062 l/s) at a pressure drop of 0.5 inch water gauge. In Example 2, Aston teaches the filter having a width of 24 inches and the length comprising 80 pleats, each pleat having two 4 inch folds. Therefore, the surface area of the filter can be calculated as $24 \text{ inches} * 80 \text{ pleats} * 2 \text{ folds/pleat} * 4 \text{ inches/fold} = 15,360 \text{ in}^2$ (9.91 m^2). From this, the permeability can be calculated as $1062 \text{ l/s} / 9.91 \text{ m}^2 = 107.2 \text{ l/m}^2/\text{s}$, which is at least about $4 \text{ l/m}^2/\text{s}$.

The Examiner notes that claim 4 does not recite the conditions (e.g. pressure drop, flow rate) at which the permeability is claimed. Therefore, since the claim is silent as to the specific conditions at which the filter exhibits the claimed permeability, the claim is seen as covering filters having a permeability of at least about $4 \text{ l/m}^2/\text{s}$ at any pressure drop or flow rate up to the mechanical failure point of the filter material. In

order to improve the clarity and precision of the claim language, the Examiner suggests Applicants insert the specific pressure drop or flow rate at which the permeability is determined into claim 4. The Examiner notes that the instant specification mentions the permeability being at least about $4 \text{ l/m}^2/\text{s}$ under "standard conditions". Since it is customary in the art to report permeability at a pressure drop across the filter of 0.5 inch w.g., the phrase "standard conditions" is seen as including a pressure drop of 0.5 inch w.g. Accordingly, adding such a limitation to the claim would not constitute new matter.

With regard to claim 8, Aston teaches the embossment having a width of 1/2 inch (12.54 mm) in col. 3, line 67 to col. 4, line 1. Therefore, the ratio of depth to width can be calculated to be $1.59 \text{ mm}/12.54 \text{ mm} = 0.127:1$ or $1.27:10$, which is within the claimed range of at least about 1:10.

6. Claims 1-3, 5 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Linnersten.

Linnersten discloses a filter (2) comprising polyester or polypropylene formed into a filter structure and having at least one embossment (the micropleats) having a depth of 0.3 inches (7.6 mm) in Figs. 1 and 4, col. 6, lines 1-36 and col. 8, lines 41-51.

7. Claims 9-11 and 13-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Fanselow et al.

With regard to claims 9-11, 14 and 15, Fanselow et al. discloses a method for forming a filter (100) comprising the steps of providing a filter material comprising fibers having a core of polypropylene and top and bottom layers of propylene-hexene copolymer adhesive, forming at least one embossment (110) into said material, said embossment having a depth of 5.5 mm, so as to provide an embossed synthetic material, and forming said embossed synthetic material into said filter and a weight of 250 g/m^2 (see the first Example in Table 1) in Figs. 1, 2 and 7, col. 3, lines 23-42, col. 7 lines 1-46, col. 8, lines 1-6 and col. 11, line 1 to col. 12, line 5.

With regard to claim 13, Fanselow et al. discloses the method comprising the step of heating the material (the propylene-hexene copolymer adhesive) to a melting point of said material prior to forming said embossment to melt the adhesive col. 7, lines 1-31.

With regard to claim 16, Fanselow et al. discloses the embossed material being substantially free of ruptures at said embossment in Figs. 1, 2 and 7, col. 3, lines 23-42, col. 7 lines 1-46, col. 8, lines 1-6 and col. 11, line 1 to col. 12, line 5.

With regard to claim 17, Fanselow et al. discloses the material having a weight of 250 g/m^2 in col. 11, line 1 to col. 12, line 5.

With regard to claim 18, Fanselow et al. discloses the embossments being formed by a wire having a diameter of 0.244 cm (2.44 mm) in the first Example of Table 1. Since the width of the embossment (110) will be equal to the width of the wire, the ratio of depth to width can be calculated to be $5.5 \text{ mm} / 2.44 \text{ mm} = 2.25:1$, which is within the claimed range of at least about 1:10.

8. Claims 8-12, 16 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Aston.

With regard to claims 8-11, Aston discloses a method for forming a filter (15) comprising the steps of providing a polyester filter material, forming at least one embossment (the dimples) into said material, said embossment having a depth of 1/16 inch (1.59 mm), so as to provide an embossed synthetic material, and forming said embossed synthetic material into said filter, wherein said embossed material is substantially free of ruptures at said embossment in Figs. 1 and 2 and col. 3, line 62 to col. 4, line 16.

With regard to claim 12, while Aston does not explicitly disclose the permeability of the filter, it can be calculated from the disclosed data. Specifically, the permeability of the filter can be determined from the air flow rate through the filter divided by the surface area of the filter. In Fig. 2, Aston discloses the filter of Example 3 having an air flow of 2250 CFM ($1.062 \text{ m}^3/\text{s}$ or 1062 l/s) at a pressure drop of 0.5 inch water gauge. In

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Example 2, Aston teaches the filter having a width of 24 inches and the length comprising 80 pleats, each pleat having two 4 inch folds. Therefore, the surface area of the filter can be calculated as $24 \text{ inches} * 80 \text{ pleats} * 2 \text{ folds/pleat} * 4 \text{ inches/fold} = 15,360 \text{ in}^2$ (9.91 m^2). From this, the permeability can be calculated as $1062 \text{ l/s} / 9.91 \text{ m}^2 = 107.2 \text{ l/m}^2/\text{s}$, which is at least about $4 \text{ l/m}^2/\text{s}$.

With regard to claim 18, Aston teaches the embossment having a width of 1/2 inch (12.54 mm) in col. 3, line 67 to col. 4, line 1. Therefore, the ratio of depth to width can be calculated to be $1.59 \text{ mm} / 12.54 \text{ mm} = 0.127:1$ or 1.27:10, which is within the claimed range of at least about 1:10.

9. Claims 9-11 and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Linnersten.

Linnersten discloses a method for forming a filter (2) comprising the steps of providing a polyester or polypropylene filter material, forming at least one embossment (the micropleats) into said material, said embossment having a depth of 0.3 inches (7.6 mm), so as to provide an embossed synthetic material, and forming said synthetic material into said filter, wherein said embossed material is substantially free of ruptures at said embossment in Figs. 1 and 4, col. 6, lines 1-36 and col. 8, lines 41-51.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Kähler, Tate et al., Barrington, Franz, Francis, Jr., Drori, Lippold, Rudner et al., Storey et al., EP 0 831 161 A1 and JP 05-131104 references disclose similar filters.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571) 272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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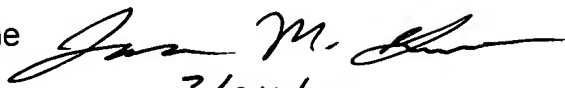
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Jason M. Greene

Examiner

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jmg

March 24, 2005